

**Work Order ID 149108**

Tuesday, July 19, 2016 2:43:52 PM

**\*149108\***

Page 1

Item ID: D5149-043

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Aft Step Base Assembly

Start Date: 8/12/2016 Start Qty: 6.00

**\*6\***

Cust Item ID:

Required Date: 8/16/2016 Req'd Qty: 6.00

**\*6\***

Customer:

Reference:

Approvals: Process Plan: **DAS 21** Date: **JUL 20 2016** Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: **9-89** Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
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| Draw Nbr | Revision Nbr |
|----------|--------------|
| D5149    | D            |

110

0.00

**\*110\***

Small Fab

Memo

0.40

Small Fab

BOND BUSHING TO BASE AS PER DWG USING 3M 1300L ADHESIVE  
BATCH: **134871**

120

QC5- Inspect part completeness to step on W/O

0.00

**\*120\***

QC

Memo

0.02

Quality Control

**DAS 38 9-89****JUL 27 2016**

130

Identify as per dwg & Stock Location: **LG 55**

0.00

**\*130\***

Packaging

Memo

0.01

Packaging

LOCATION : LG055

**DAS 26 9-89****JUL 27 2016**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                            | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |                                               | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube <input type="checkbox"/></td> <td style="border: none;">Cross tube <input type="checkbox"/></td> <td style="border: none;">Water Jet <input type="checkbox"/></td> <td style="border: none;">Engineering <input type="checkbox"/></td> </tr> <tr> <td style="border: none;">Machining <input type="checkbox"/></td> <td style="border: none;">Small Fab <input type="checkbox"/></td> <td style="border: none;">Prod. Eng. Coord. <input type="checkbox"/></td> <td style="border: none;">Quality <input type="checkbox"/></td> </tr> <tr> <td style="border: none;">Thermoforming <input type="checkbox"/></td> <td style="border: none;">Finishing <input type="checkbox"/></td> <td style="border: none;">Rec/Store/Packaging <input type="checkbox"/></td> <td style="border: none;">Other <input type="checkbox"/></td> </tr> <tr> <td style="border: none;">Large Fab <input type="checkbox"/></td> <td style="border: none;">Composite <input type="checkbox"/></td> <td style="border: none;">Supplier <input type="checkbox"/></td> <td></td> </tr> </table> |                                             |                                 |                                   |                                   |                                       | Skid-tube <input type="checkbox"/>     | Cross tube <input type="checkbox"/> | Water Jet <input type="checkbox"/>    | Engineering <input type="checkbox"/> | Machining <input type="checkbox"/> | Small Fab <input type="checkbox"/>       | Prod. Eng. Coord. <input type="checkbox"/>  | Quality <input type="checkbox"/>          | Thermoforming <input type="checkbox"/>    | Finishing <input type="checkbox"/> | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/>               | Large Fab <input type="checkbox"/>  | Composite <input type="checkbox"/>           | Supplier <input type="checkbox"/>         |                                                |                                        |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| <table style="width:100%; border: none;"> <tr><td style="border: none;">Environment <input type="checkbox"/></td><td style="border: none;">No Re-verification <input type="checkbox"/></td></tr> <tr><td style="border: none;">Design <input type="checkbox"/></td><td style="border: none;">Operator <input type="checkbox"/></td></tr> <tr><td style="border: none;">Doc/Data <input type="checkbox"/></td><td style="border: none;">Offset/Setup <input type="checkbox"/></td></tr> <tr><td style="border: none;">Equip/Tooling <input type="checkbox"/></td><td style="border: none;">Supplier <input type="checkbox"/></td></tr> <tr><td style="border: none;">Handling/Pre <input type="checkbox"/></td><td style="border: none;">Training <input type="checkbox"/></td></tr> <tr><td style="border: none;">Material <input type="checkbox"/></td><td style="border: none;">Use for Testing <input type="checkbox"/></td></tr> <tr><td style="border: none;">Internal Transport <input type="checkbox"/></td><td style="border: none;">Poor Information <input type="checkbox"/></td></tr> <tr><td style="border: none;">Tribal Knowledge <input type="checkbox"/></td><td style="border: none;">Rushing <input type="checkbox"/></td></tr> <tr><td style="border: none;">LOA <input type="checkbox"/></td><td style="border: none;">Product Improvement <input type="checkbox"/></td></tr> <tr><td style="border: none;">Substation <input type="checkbox"/></td><td style="border: none;">Process Improvement <input type="checkbox"/></td></tr> <tr><td style="border: none;">Past Expiry Date <input type="checkbox"/></td><td style="border: none;">Manufacturing Process <input type="checkbox"/></td></tr> <tr><td style="border: none;">Misidentified <input type="checkbox"/></td><td style="border: none;">Past Due <input type="checkbox"/></td></tr> </table> |                                                            |                                                                                                                                                                                    |                                               | Environment <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | No Re-verification <input type="checkbox"/> | Design <input type="checkbox"/> | Operator <input type="checkbox"/> | Doc/Data <input type="checkbox"/> | Offset/Setup <input type="checkbox"/> | Equip/Tooling <input type="checkbox"/> | Supplier <input type="checkbox"/>   | Handling/Pre <input type="checkbox"/> | Training <input type="checkbox"/>    | Material <input type="checkbox"/>  | Use for Testing <input type="checkbox"/> | Internal Transport <input type="checkbox"/> | Poor Information <input type="checkbox"/> | Tribal Knowledge <input type="checkbox"/> | Rushing <input type="checkbox"/>   | LOA <input type="checkbox"/>                 | Product Improvement <input type="checkbox"/> | Substation <input type="checkbox"/> | Process Improvement <input type="checkbox"/> | Past Expiry Date <input type="checkbox"/> | Manufacturing Process <input type="checkbox"/> | Misidentified <input type="checkbox"/> | Past Due <input type="checkbox"/> | <table style="width:100%; border: none;"> <tr><td style="border: none;"><input type="checkbox"/> Pressure/Forced</td><td style="border: none;"><input type="checkbox"/> Temperature/Cure</td><td style="border: none;"><input type="checkbox"/> Power Loss/Surge</td><td style="border: none;"><input type="checkbox"/> Positioned Wrong</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Bending</td><td style="border: none;"><input type="checkbox"/> Set-up</td><td style="border: none;"><input type="checkbox"/> Folio/Program</td><td style="border: none;"><input type="checkbox"/> Outside Dimensions</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Centre Not Concentric</td><td style="border: none;"><input type="checkbox"/> BOM/Route</td><td style="border: none;"><input type="checkbox"/> Grain</td><td style="border: none;"><input type="checkbox"/> Over/Under tolerance</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Cracks</td><td style="border: none;"><input type="checkbox"/> Broken/Damage/Defect</td><td style="border: none;"><input type="checkbox"/> Weld</td><td style="border: none;"><input type="checkbox"/> Part Incorrect</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Crimp/Kink/Ripple/Wave</td><td style="border: none;"><input type="checkbox"/> Inspection Incomplete/Unqualified</td><td style="border: none;"><input type="checkbox"/> Wrong Stock Pulled</td><td style="border: none;"><input type="checkbox"/> Part Lost/Missing</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Cuffs</td><td style="border: none;"><input type="checkbox"/> Contamination</td><td style="border: none;"><input type="checkbox"/> Out of Sequence</td><td style="border: none;"><input type="checkbox"/> Part Moved</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Crushing</td><td style="border: none;"><input type="checkbox"/> Countersink</td><td style="border: none;"><input type="checkbox"/> Off-set</td><td style="border: none;"><input type="checkbox"/> Drawing</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Heat Treat</td><td style="border: none;"><input type="checkbox"/> Cut Too Short</td><td style="border: none;"><input type="checkbox"/> Misabeled</td><td style="border: none;"><input type="checkbox"/> Finish</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Wave/Twist in Tube</td><td style="border: none;"><input type="checkbox"/> Instructions Incomplete/Unclear</td><td style="border: none;"><input type="checkbox"/> Fit/Function</td><td style="border: none;"><input type="checkbox"/> Misread</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Marks/Chatter</td><td style="border: none;"><input type="checkbox"/> Drill Holes</td><td style="border: none;"><input type="checkbox"/> Misaligned/off center</td><td style="border: none;"><input type="checkbox"/> Turning Sequence</td></tr> </table> |  |  |  |  |  | <input type="checkbox"/> Pressure/Forced | <input type="checkbox"/> Temperature/Cure | <input type="checkbox"/> Power Loss/Surge | <input type="checkbox"/> Positioned Wrong | <input type="checkbox"/> Bending | <input type="checkbox"/> Set-up | <input type="checkbox"/> Folio/Program | <input type="checkbox"/> Outside Dimensions | <input type="checkbox"/> Centre Not Concentric | <input type="checkbox"/> BOM/Route | <input type="checkbox"/> Grain | <input type="checkbox"/> Over/Under tolerance | <input type="checkbox"/> Cracks | <input type="checkbox"/> Broken/Damage/Defect | <input type="checkbox"/> Weld | <input type="checkbox"/> Part Incorrect | <input type="checkbox"/> Crimp/Kink/Ripple/Wave | <input type="checkbox"/> Inspection Incomplete/Unqualified | <input type="checkbox"/> Wrong Stock Pulled | <input type="checkbox"/> Part Lost/Missing | <input type="checkbox"/> Cuffs | <input type="checkbox"/> Contamination | <input type="checkbox"/> Out of Sequence | <input type="checkbox"/> Part Moved | <input type="checkbox"/> Crushing | <input type="checkbox"/> Countersink | <input type="checkbox"/> Off-set | <input type="checkbox"/> Drawing | <input type="checkbox"/> Heat Treat | <input type="checkbox"/> Cut Too Short | <input type="checkbox"/> Misabeled | <input type="checkbox"/> Finish | <input type="checkbox"/> Wave/Twist in Tube | <input type="checkbox"/> Instructions Incomplete/Unclear | <input type="checkbox"/> Fit/Function | <input type="checkbox"/> Misread | <input type="checkbox"/> Marks/Chatter | <input type="checkbox"/> Drill Holes | <input type="checkbox"/> Misaligned/off center | <input type="checkbox"/> Turning Sequence |
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| <input type="checkbox"/> Pressure/Forced                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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                                                  | <input type="checkbox"/> Positioned Wrong     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| <input type="checkbox"/> Bending                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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                                                  | <input type="checkbox"/> Outside Dimensions   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| <input type="checkbox"/> Centre Not Concentric                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                                                  | <input type="checkbox"/> Over/Under tolerance |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| <input type="checkbox"/> Cracks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                                                  | <input type="checkbox"/> Part Incorrect       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| <input type="checkbox"/> Crimp/Kink/Ripple/Wave                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| <input type="checkbox"/> Cuffs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| <input type="checkbox"/> Crushing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| <input type="checkbox"/> Heat Treat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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| <input type="checkbox"/> Wave/Twist in Tube                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| <input type="checkbox"/> Marks/Chatter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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**\*149108\***

*Tuesday, July 19, 2016 2:43:52 PM*

**\*N900040100\***

Setup Start \*NS1\*

Stop \*NS2\*

**Start Date:** 8/12/2016      **Start Qty:** 6.00

**\*6\***

**Cust Item ID:**

**Required Date:** 8/16/2016      **Req'd Qty:** 6.00

**\*6\***

**Customer:**

**Reference:**

**Approvals:**      **Process Plan:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Tooling:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

| Tool ID | Tool # | Plan Code |
|---------|--------|-----------|
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| Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
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QC21- Final Inspection - Work Order Release

0.00

**\*140\***

QC

## Memo

0.10

## Quality Control

**DAS**

21

**9-20**

JUL 28 2016

Em 16/07/27

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                            | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |                                               | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube <input type="checkbox"/></td> <td style="border: none;">Cross tube <input type="checkbox"/></td> <td style="border: none;">Water Jet <input type="checkbox"/></td> <td style="border: none;">Engineering <input type="checkbox"/></td> </tr> <tr> <td style="border: none;">Machining <input type="checkbox"/></td> <td style="border: none;">Small Fab <input type="checkbox"/></td> <td style="border: none;">Prod. Eng. Coord. <input type="checkbox"/></td> <td style="border: none;">Quality <input type="checkbox"/></td> </tr> <tr> <td style="border: none;">Thermoforming <input type="checkbox"/></td> <td style="border: none;">Finishing <input type="checkbox"/></td> <td style="border: none;">Rec/Store/Packaging <input type="checkbox"/></td> <td style="border: none;">Other <input type="checkbox"/></td> </tr> <tr> <td style="border: none;">Large Fab <input type="checkbox"/></td> <td style="border: none;">Composite <input type="checkbox"/></td> <td style="border: none;">Supplier <input type="checkbox"/></td> <td style="border: none;"></td> </tr> </table> |                                   |                                   |                                       |                                              |                                   | Skid-tube <input type="checkbox"/>    | Cross tube <input type="checkbox"/> | Water Jet <input type="checkbox"/> | Engineering <input type="checkbox"/>     | Machining <input type="checkbox"/>          | Small Fab <input type="checkbox"/>        | Prod. Eng. Coord. <input type="checkbox"/> | Quality <input type="checkbox"/> | Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/>           | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/>               | Large Fab <input type="checkbox"/>        | Composite <input type="checkbox"/>             | Supplier <input type="checkbox"/>      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| Skid-tube <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| <b>Root Cause</b><br><table style="width:100%; border: none;"> <tr><td style="border: none;">Environment <input type="checkbox"/></td><td style="border: none;">No Re-verification <input type="checkbox"/></td></tr> <tr><td style="border: none;">Design <input type="checkbox"/></td><td style="border: none;">Operator <input type="checkbox"/></td></tr> <tr><td style="border: none;">Doc/Data <input type="checkbox"/></td><td style="border: none;">Offset/Setup <input type="checkbox"/></td></tr> <tr><td style="border: none;">Equip/Tooling <input type="checkbox"/></td><td style="border: none;">Supplier <input type="checkbox"/></td></tr> <tr><td style="border: none;">Handling/Pre <input type="checkbox"/></td><td style="border: none;">Training <input type="checkbox"/></td></tr> <tr><td style="border: none;">Material <input type="checkbox"/></td><td style="border: none;">Use for Testing <input type="checkbox"/></td></tr> <tr><td style="border: none;">Internal Transport <input type="checkbox"/></td><td style="border: none;">Poor Information <input type="checkbox"/></td></tr> <tr><td style="border: none;">Tribal Knowledge <input type="checkbox"/></td><td style="border: none;">Rushing <input type="checkbox"/></td></tr> <tr><td style="border: none;">LOA <input type="checkbox"/></td><td style="border: none;">Product Improvement <input type="checkbox"/></td></tr> <tr><td style="border: none;">Substation <input type="checkbox"/></td><td style="border: none;">Process Improvement <input type="checkbox"/></td></tr> <tr><td style="border: none;">Past Expiry Date <input type="checkbox"/></td><td style="border: none;">Manufacturing Process <input type="checkbox"/></td></tr> <tr><td style="border: none;">Misidentified <input type="checkbox"/></td><td style="border: none;">Past Due <input type="checkbox"/></td></tr> </table> |                                                            | Environment <input type="checkbox"/>                                                                                                                                               | No Re-verification <input type="checkbox"/>   | Design <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Operator <input type="checkbox"/> | Doc/Data <input type="checkbox"/> | Offset/Setup <input type="checkbox"/> | Equip/Tooling <input type="checkbox"/>       | Supplier <input type="checkbox"/> | Handling/Pre <input type="checkbox"/> | Training <input type="checkbox"/>   | Material <input type="checkbox"/>  | Use for Testing <input type="checkbox"/> | Internal Transport <input type="checkbox"/> | Poor Information <input type="checkbox"/> | Tribal Knowledge <input type="checkbox"/>  | Rushing <input type="checkbox"/> | LOA <input type="checkbox"/>           | Product Improvement <input type="checkbox"/> | Substation <input type="checkbox"/>          | Process Improvement <input type="checkbox"/> | Past Expiry Date <input type="checkbox"/> | Manufacturing Process <input type="checkbox"/> | Misidentified <input type="checkbox"/> | Past Due <input type="checkbox"/> | <b>FAULT CATEGORY</b><br><table style="width:100%; 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| Handling/Pre <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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| Material <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| Internal Transport <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| Tribal Knowledge <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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| LOA <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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| Substation <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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| Past Expiry Date <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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| Misidentified <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| Pressure/Forced <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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| Bending <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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| Centre Not Concentric <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                                                                       | Over/Under tolerance <input type="checkbox"/> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| Cracks <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                                                                       | Part Incorrect <input type="checkbox"/>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| Crimp/Kink/Ripple/Wave <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Cuffs <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| Crushing <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| Heat Treat <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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                                                                       | Finish <input type="checkbox"/>               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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|                                            |                                |                                        |                                          |                                     |                                   |                                      |                                  |                                  |                                     |                                        |                                     |                                 |                                             |                                                          |                                       |                                  |                                        |                                      |                                                |                                           |
| Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>                                                                                                                                              | Misread <input type="checkbox"/>              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                   |                                   |                                       |                                              |                                   |                                       |                                     |                                    |                                          |                                             |                                           |                                            |                                  |                                        |                                              |                                              |                                              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|                                            |                                |                                        |                                          |                                     |                                   |                                      |                                  |                                  |                                     |                                        |                                     |                                 |                                             |                                                          |                                       |                                  |                                        |                                      |                                                |                                           |
| Marks/Chatter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/>                                                                                                                                     | Turning Sequence <input type="checkbox"/>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                   |                                   |                                       |                                              |                                   |                                       |                                     |                                    |                                          |                                             |                                           |                                            |                                  |                                        |                                              |                                              |                                              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|                                            |                                |                                        |                                          |                                     |                                   |                                      |                                  |                                  |                                     |                                        |                                     |                                 |                                             |                                                          |                                       |                                  |                                        |                                      |                                                |                                           |

# Picklist Print

Tuesday, July 19, 2016 2:43:52 PM

Page 1

Work Order ID: 149108

**\*149108\***

Parent Item: D5149-043

**\*D5149-043\***

Parent Item Name: Aft Step Base Assembly

Start Date: 8/12/2016

Required Date: 8/16/2016

Start Qty: 6.00

Required Qty: 6.00

Comments: IPP REV:A 14.10.14 NEW ISSUE DD VERF:JLM IPP  
REV:A 14.12.15 dwg pb1 DD VERF:JLM

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand  | Qty per Kit | Total<br>Qty | Qty<br>Issued<br>DAS<br>9-89 | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|-----------------|-------------|--------------|------------------------------|----------------|--------|
| D5149-043W                      |                        | Manufactured  | No          |                     |                  |                 | Each               | 0.0000          |             | 6            | 30                           |                |        |
| <b>*D5149-043W*</b>             |                        |               |             |                     |                  | B 143461        |                    |                 | **          | (6)          | 9-89                         | JUL 26 2016    |        |
| Aft Step Base Assembly Weldment |                        |               |             |                     |                  |                 |                    |                 |             |              |                              |                |        |
| D5151-3                         |                        | Manufactured  | No          |                     |                  |                 | Each               | 39.0000         |             | 6            |                              |                |        |
| <b>*D5151-3*</b>                |                        |               |             |                     |                  |                 |                    |                 | **          |              | DAS<br>30<br>9-89            | JUL 26 2016    |        |
| Clamp Cushion                   |                        |               |             |                     |                  |                 |                    |                 |             |              |                              |                |        |
|                                 |                        |               |             | <u>Location</u>     |                  | <u>Loc Qty</u>  |                    | <u>Loc Code</u> |             |              |                              |                |        |
|                                 |                        |               |             | GA                  |                  | 3               |                    |                 |             |              |                              |                |        |
|                                 |                        |               |             | 142592              |                  | 3               |                    |                 |             | 3            |                              |                |        |
|                                 |                        |               |             | LG54                |                  | 36              |                    |                 |             |              |                              |                |        |
|                                 |                        |               |             | 142732              |                  | 36              |                    |                 |             | 3            |                              |                |        |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



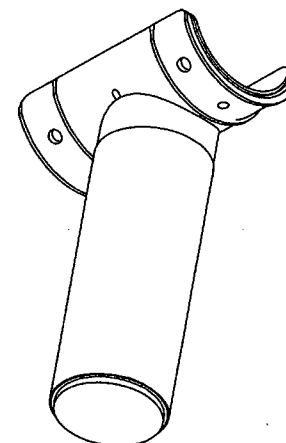
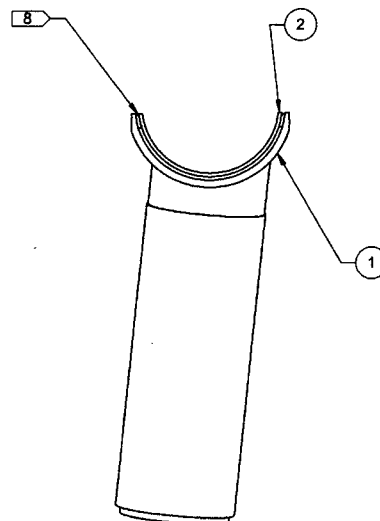
## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                                                                                    |  |
|--------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--|-----------------------|--------------------------------------------------------------------------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |                                                | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |                                                            | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                                               |  |                       |                                                                                                                    |  |
| Date :                                                       |                                                | Step #:                                                                                                                                                                            |                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  | MRB (QSI042) Approval |                                                                                                                    |  |
| Description Work Order Deviation                             |                                                |                                                                                                                                                                                    |                                                            | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                               |  |                       | Completed By<br><br><br>Lead hand / Supervisor<br>Approval Verification<br><br><br>QC / QA Coordinator<br>Approval |  |
|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                                                                                    |  |
|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                                                                                    |  |
| Root Cause                                                   |                                                | FAULT CATEGORY                                                                                                                                                                     |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                                                                                    |  |
| Environment <input type="checkbox"/>                         | No Re-verification <input type="checkbox"/>    | Pressure/Forced <input type="checkbox"/>                                                                                                                                           | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Positioned Wrong <input type="checkbox"/>     |  |                       |                                                                                                                    |  |
| Design <input type="checkbox"/>                              | Operator <input type="checkbox"/>              | Bending <input type="checkbox"/>                                                                                                                                                   | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Outside Dimensions <input type="checkbox"/>   |  |                       |                                                                                                                    |  |
| Doc/Data <input type="checkbox"/>                            | Offset/Setup <input type="checkbox"/>          | Centre Not Concentric <input type="checkbox"/>                                                                                                                                     | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Over/Under tolerance <input type="checkbox"/> |  |                       |                                                                                                                    |  |
| Equip/Tooling <input type="checkbox"/>                       | Supplier <input type="checkbox"/>              | Cracks <input type="checkbox"/>                                                                                                                                                    | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Part Incorrect <input type="checkbox"/>       |  |                       |                                                                                                                    |  |
| Handling/Pre <input type="checkbox"/>                        | Training <input type="checkbox"/>              | Crimp/Kink/Ripple/Wave <input type="checkbox"/>                                                                                                                                    | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Part Lost/Missing <input type="checkbox"/>    |  |                       |                                                                                                                    |  |
| Material <input type="checkbox"/>                            | Use for Testing <input type="checkbox"/>       | Cuffs <input type="checkbox"/>                                                                                                                                                     | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Part Moved <input type="checkbox"/>           |  |                       |                                                                                                                    |  |
| Internal Transport <input type="checkbox"/>                  | Poor Information <input type="checkbox"/>      | Crushing <input type="checkbox"/>                                                                                                                                                  | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Drawing <input type="checkbox"/>              |  |                       |                                                                                                                    |  |
| Tribal Knowledge <input type="checkbox"/>                    | Rushing <input type="checkbox"/>               | Heat Treat <input type="checkbox"/>                                                                                                                                                | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Finish <input type="checkbox"/>               |  |                       |                                                                                                                    |  |
| LOA <input type="checkbox"/>                                 | Product Improvement <input type="checkbox"/>   | Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                        | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Misread <input type="checkbox"/>              |  |                       |                                                                                                                    |  |
| Substation <input type="checkbox"/>                          | Process Improvement <input type="checkbox"/>   | Marks/Chatter <input type="checkbox"/>                                                                                                                                             | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Turning Sequence <input type="checkbox"/>     |  |                       |                                                                                                                    |  |
| Past Expiry Date <input type="checkbox"/>                    | Manufacturing Process <input type="checkbox"/> |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                                                                                    |  |
| Misidentified <input type="checkbox"/>                       | Past Due <input type="checkbox"/>              | OTHER : <input type="checkbox"/>                                                                                                                                                   |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                                                                                    |  |

| ITEM | QTY | P/N        | DESCRIPTION            |
|------|-----|------------|------------------------|
|      | X   | D5149-041  | FWD STEP ASSEMBLY      |
| 1    | 1   | D5149-041W | FWD STEP BASE WELDMENT |
| 2    | 1   | D5151-1    | CLAMP CUSHION          |



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WITHOUT NOTICE  
WORK ORDER  
NO. 149108 MCS  
16-07-20

# **D5149-041 FWD STEP ASSEMBLY**

## **NOTES:**

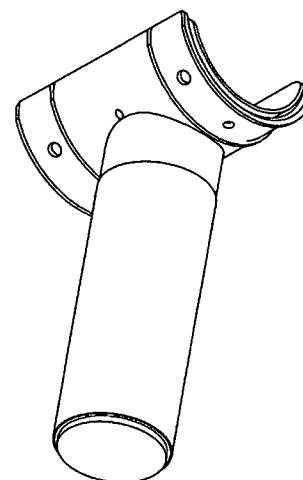
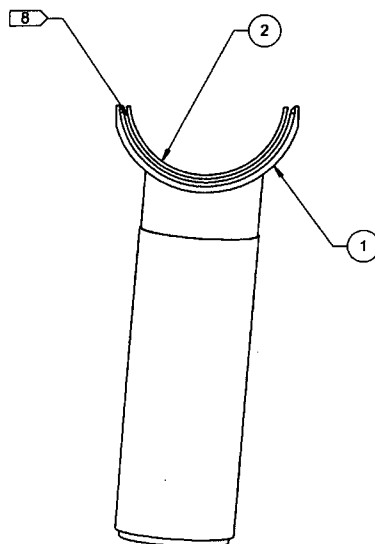
- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.69 lbs
- 8) BOND D5151-1 CUSHION TO D5149-041W BASE WELDMENT USING 3M 1300L ADHESIVE

| D          | DIAMETER OF D5149-5 CAP IS NOW 1.88 WAS 2.00 TO EASE WELDING PROCEDURE, UPDATE TOLERANCES | AP                                                                                                                                                                                                                                                                                           | 15.10.20      |
|------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| C          | ANTI-KID FINISH DIM MODIFIED DUE TO INTERFERENCE WITH WELD (SHT 3 & 4)                    | AP                                                                                                                                                                                                                                                                                           | 15.04.27      |
| B          | COMPLETE RE-DESIGN, SEE PREVIOUS REV FOR DETAILS                                          | DB                                                                                                                                                                                                                                                                                           | 15.01.14      |
| A          | NEW ISSUE                                                                                 | DB                                                                                                                                                                                                                                                                                           | 14.10.25      |
| REV.       | DESCRIPTION                                                                               | BY                                                                                                                                                                                                                                                                                           | DATE          |
| DESIGN     | DB                                                                                        | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                     |               |
| DRAWN      | AP                                                                                        |                                                                                                                                                                                                                                                                                              |               |
| CHECKED    | DB                                                                                        | DRAWING NO.                                                                                                                                                                                                                                                                                  | REV. D        |
| MFG. APPR. | DD                                                                                        | D5149                                                                                                                                                                                                                                                                                        | SHEET 1 OF 11 |
| APPROVED   | WM                                                                                        | TITLE                                                                                                                                                                                                                                                                                        | SCALE         |
| DE APPR.   | DS                                                                                        | STEP ASSEMBLY                                                                                                                                                                                                                                                                                | NTS           |
| DATE       | 15.10.20                                                                                  | <small>COPYRIGHT © 2014 BY DART AEROSPACE LTD<br/> THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR DISCLOSED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> |               |

RELEASED  
2015-11-04  
EN 15-642

APPROVED  
ON

| ITEM | QTY | P/N        | DESCRIPTION            |
|------|-----|------------|------------------------|
|      | X   | D5149-043  | AFT STEP ASSEMBLY      |
| 1    | 1   | D5149-043W | AFT STEP BASE WELDMENT |
| 2    | 1   | D5151-3    | CLAMP CUSHION          |



**D5149-043 AFT STEP ASSEMBLY**

**NOTES:**

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.87 lbs
- 8) BOND D5151-3 CUSHION TO D5149-043W BASE WELDMENT USING 3M 1300L ADHESIVE

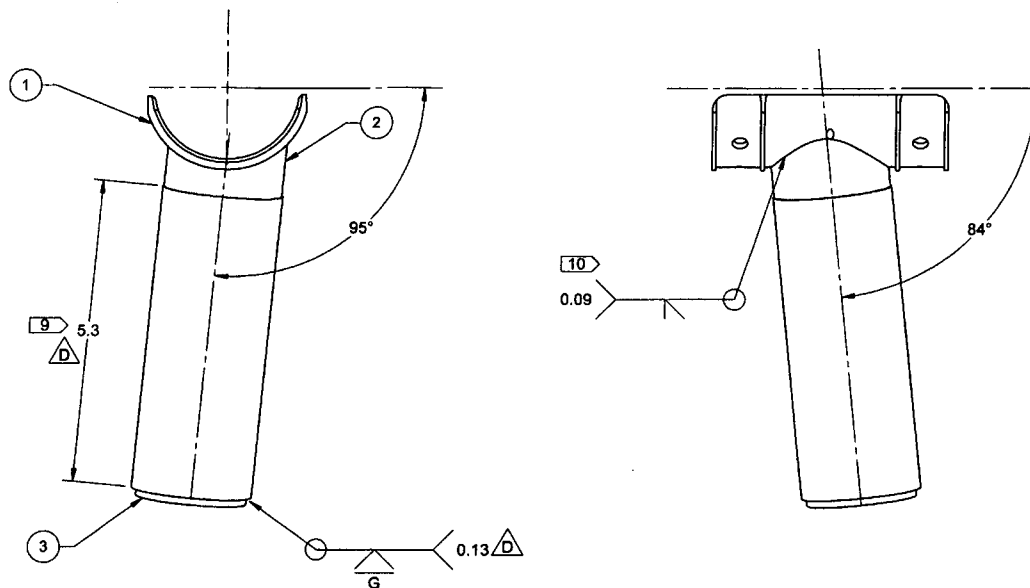
**RELEASED**  
2015-11-04

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|            |          |                                                                                                                                                                                                                                                                                          |               |
|------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| DESIGN     | DB       | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                 |               |
| DRAWN      | AP       |                                                                                                                                                                                                                                                                                          |               |
| CHECKED    | DB       | DRAWING NO.                                                                                                                                                                                                                                                                              | REV. D        |
| MFG. APPR. | DD       | D5149                                                                                                                                                                                                                                                                                    | SHEET 2 OF 11 |
| APPROVED   | WM       | TITLE                                                                                                                                                                                                                                                                                    | SCALE         |
| DE APPR.   | DS       | STEP ASSEMBLY                                                                                                                                                                                                                                                                            | NTS           |
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| ITEM | QTY-041W | P/N        | DESCRIPTION            |
|------|----------|------------|------------------------|
|      | X        | D5149-041W | FWD STEP BASE WELDMENT |
| 1    | 1        | D5149-1    | FWD STEP BASE          |
| 2    | 1        | D5149-3    | FWD STEP               |
| 3    | 1        | D5149-5    | STEP CAP               |



**D5149-041W FWD STEP BASE WELDMENT**

**NOTES:**

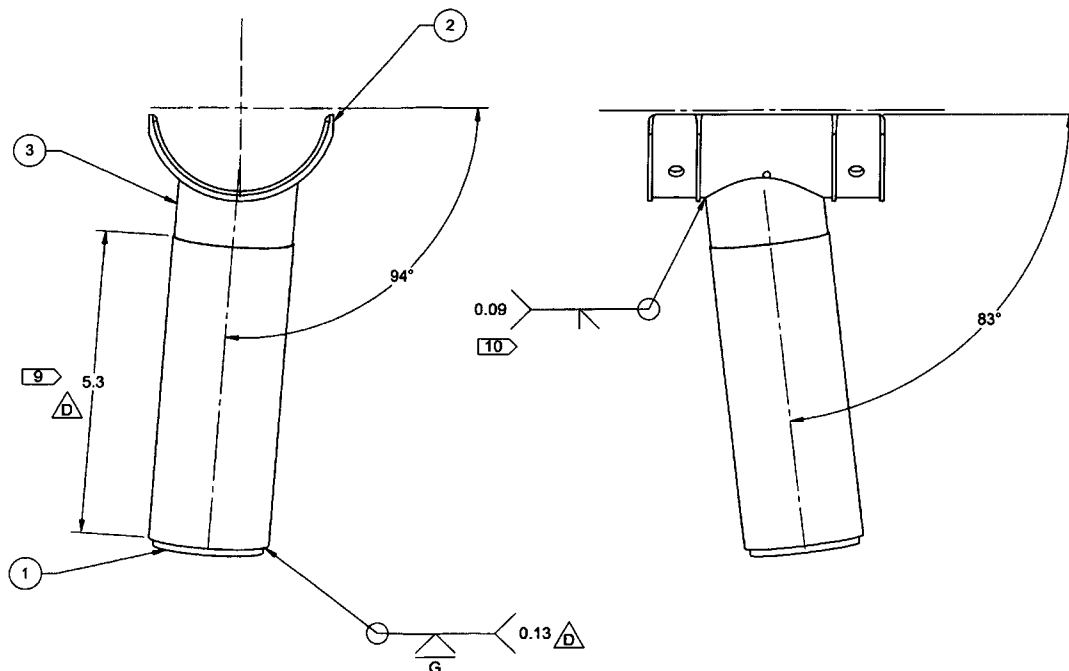
- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
POWDER COAT "WHITE" (4.3.5.1) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.67 lbs
- 8) WELDING PER DART QSI 004
- 9) APPLY BLACK ANTI-SKID PAINT TO STEP TUBE, ALL AROUND PER DART QSI 005 4.4
- 10) ALIGN D5149-3 FWD STEP WITH EDGE OF ALIGNMENT HOLES IN D5149-1 FWD STEP BASE PRIOR TO WELDING

**RELEASED**  
2015-11-04

APPROVED

|                                                                                                                                                                                                                                |          |                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------|---------------|
| DESIGN                                                                                                                                                                                                                         | DB       | <b>DART AEROSPACE LTD</b>              |               |
| DRAWN                                                                                                                                                                                                                          | AP       | HAWKESBURY, ONTARIO, CANADA            |               |
| CHECKED                                                                                                                                                                                                                        | DB       | DRAWING NO.                            | REV. D        |
| MFG. APPR.                                                                                                                                                                                                                     | DD       | D5149                                  | SHEET 3 OF 11 |
| APPROVED                                                                                                                                                                                                                       | WM       | TITLE                                  | SCALE         |
| DE APPR.                                                                                                                                                                                                                       | DS       | STEP ASSEMBLY                          | NTS           |
| DATE                                                                                                                                                                                                                           | 15.10.20 | COPYRIGHT © 2014 BY DART AEROSPACE LTD |               |
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| ITEM | QTY.<br>043W | P/N        | DESCRIPTION            |
|------|--------------|------------|------------------------|
|      | X            | D5149-043W | AFT STEP BASE WELDMENT |
| 1    | 1            | D5149-5    | STEP CAP               |
| 2    | 1            | D5149-7    | AFT STEP BASE          |
| 3    | 1            | D5149-9    | AFT STEP               |



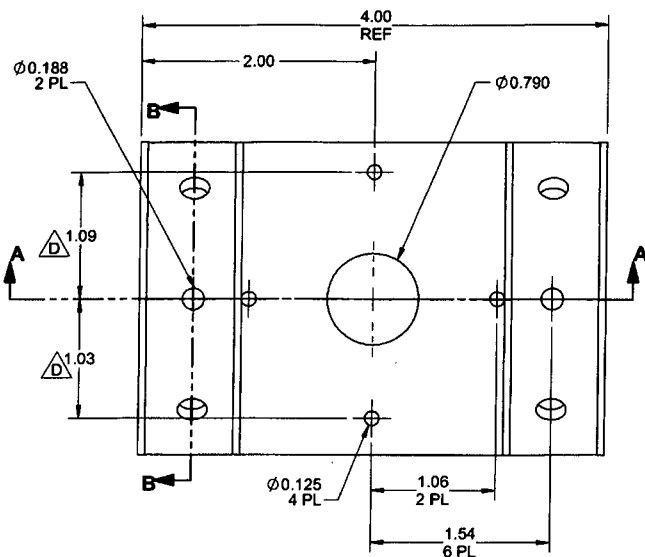
**D5149-043W AFT STEP BASE WELDMENT**

NOTES:

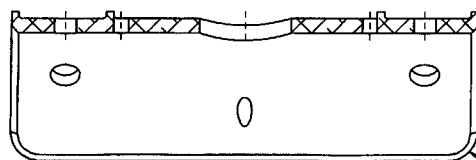
- NOTES:**  
1) MATERIAL: N/A  
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
POWDER COAT "WHITE" (4.3.5.1) PER DART QSI 005 4.3  
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED  
4) UNITS: INCHES UNLESS OTHERWISE NOTED  
5) BREAK SHARP EDGES: N/A  
6) IDENTIFICATION: NONE  
7) WEIGHT: 0.67 lbs  
8) WELDING PER DART QSI 004  
9) APPLY BLACK ANTI-SKID PAINT TO STEP TUBE, ALL AROUND PER DART QSI 005 4.4  
10) ALIGN D5149-9 AFT STEP WITH EDGE OF ALIGNMENT HOLES IN D5149-7 AFT STEP BASE PRIOR TO WELDING

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|            |          |                                                                                                                                                                                                                                                                                                                                                                    |
|------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGN     | DB       | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA<br><br>DRAWING NO. <b>D5149</b><br><br>TITLE <b>STEP ASSEMBLY</b><br><br>SCALE <b>NTS</b>                                                                                                                                                                                                                 |
| DRAWN      | AP       |                                                                                                                                                                                                                                                                                                                                                                    |
| CHECKED    | DB       |                                                                                                                                                                                                                                                                                                                                                                    |
| MFG. APPR. | DD       |                                                                                                                                                                                                                                                                                                                                                                    |
| APPROVED   | WM       |                                                                                                                                                                                                                                                                                                                                                                    |
| DE APPR.   | DS       |                                                                                                                                                                                                                                                                                                                                                                    |
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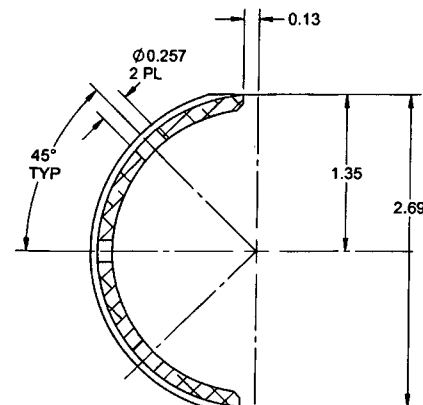


**D5149-1 FWD STEP BASE**  
(MAKE FROM D5149-1 TRN)

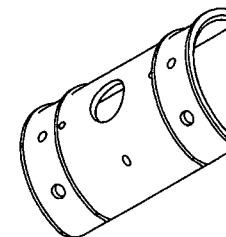


**SECTION A-A**

0.06 X 45° CMF  
ALL AROUND INSIDE EDGE



**SECTION B-B**  
2 PL



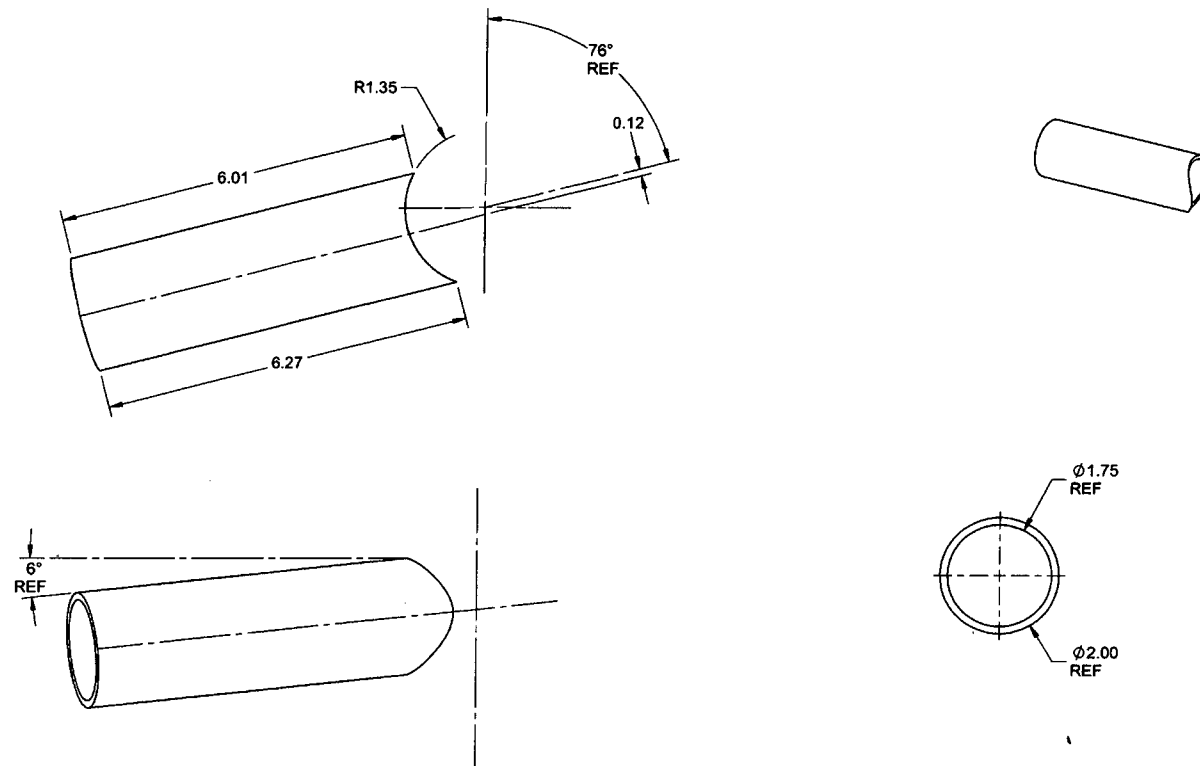
**NOTES:**

- 1) MATERIAL: MAKE FROM D5149-1 TRN
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.20 lbs

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|                                                                                                                                                                                                                                 |          |                                        |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------|---------------|
| DESIGN                                                                                                                                                                                                                          | DB       | <b>DART AEROSPACE LTD</b>              |               |
| DRAWN                                                                                                                                                                                                                           | AP       | HAWKESBURY, ONTARIO, CANADA            |               |
| CHECKED                                                                                                                                                                                                                         | DB       | DRAWING NO.                            | REV. D        |
| MFG. APPR.                                                                                                                                                                                                                      | DD       | D5149                                  | SHEET 5 OF 11 |
| APPROVED                                                                                                                                                                                                                        | WM       | TITLE                                  | SCALE         |
| DE APPR.                                                                                                                                                                                                                        | DS       | STEP ASSEMBLY                          | NTS           |
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**D5149-3 FWD STEP**

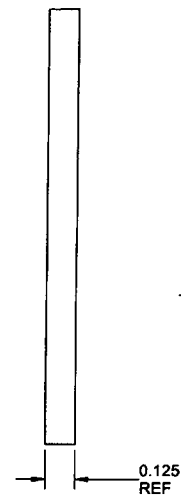
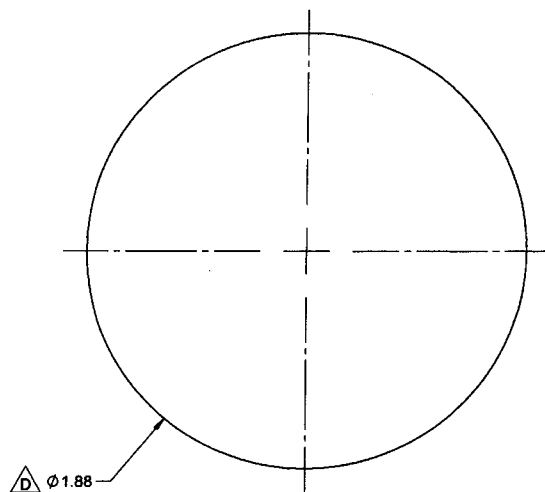
**NOTES:**

- 1) MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING PER WW-T-700/6 OR QQ-A-200/8 OR QQ-A-225/8  
OR AMS 4080 OR AMS 4082 OR AMS 4083 OR ASTM B210 OR ASTM B241  
REF DART SPEC M6061T6T2.000W0.125
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.42 lbs

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|------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| DESIGN     | DB       | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                          |        |
| DRAWN      | AP       |                                                                                                                                                                                                                                                                                                   |        |
| CHECKED    | DB       | DRAWING NO.<br><b>D5149</b>                                                                                                                                                                                                                                                                       | REV. D |
| MFG. APPR. | DD       | SHEET 6 OF 11                                                                                                                                                                                                                                                                                     |        |
| APPROVED   | WM       | TITLE                                                                                                                                                                                                                                                                                             | SCALE  |
| DE APPR.   | DS       | <b>STEP ASSEMBLY</b>                                                                                                                                                                                                                                                                              | NTS    |
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**D5149-5 STEP CAP**

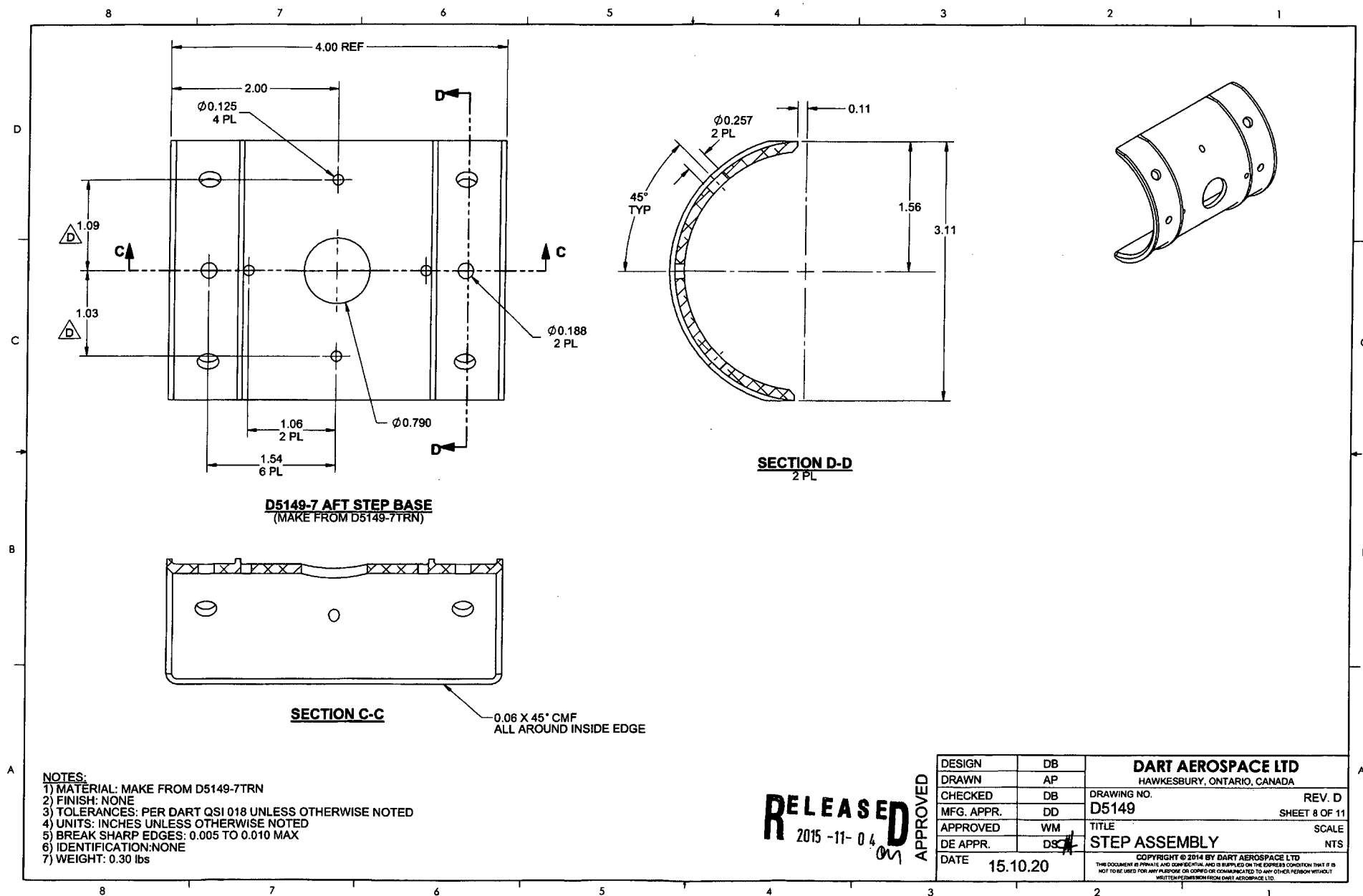
**NOTES:**

- 1) MATERIAL: 6061-T6 (OR 6061-T62) ALUMINUM SHEET, 0.125 THICK  
PER QQ-A-250/11 OR AMS-QQ-A-250/11 OR AMS 4025 OR AMS 4027 OR ASTM B209  
REF DART SPEC M6061T6S.125
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.03 lbs

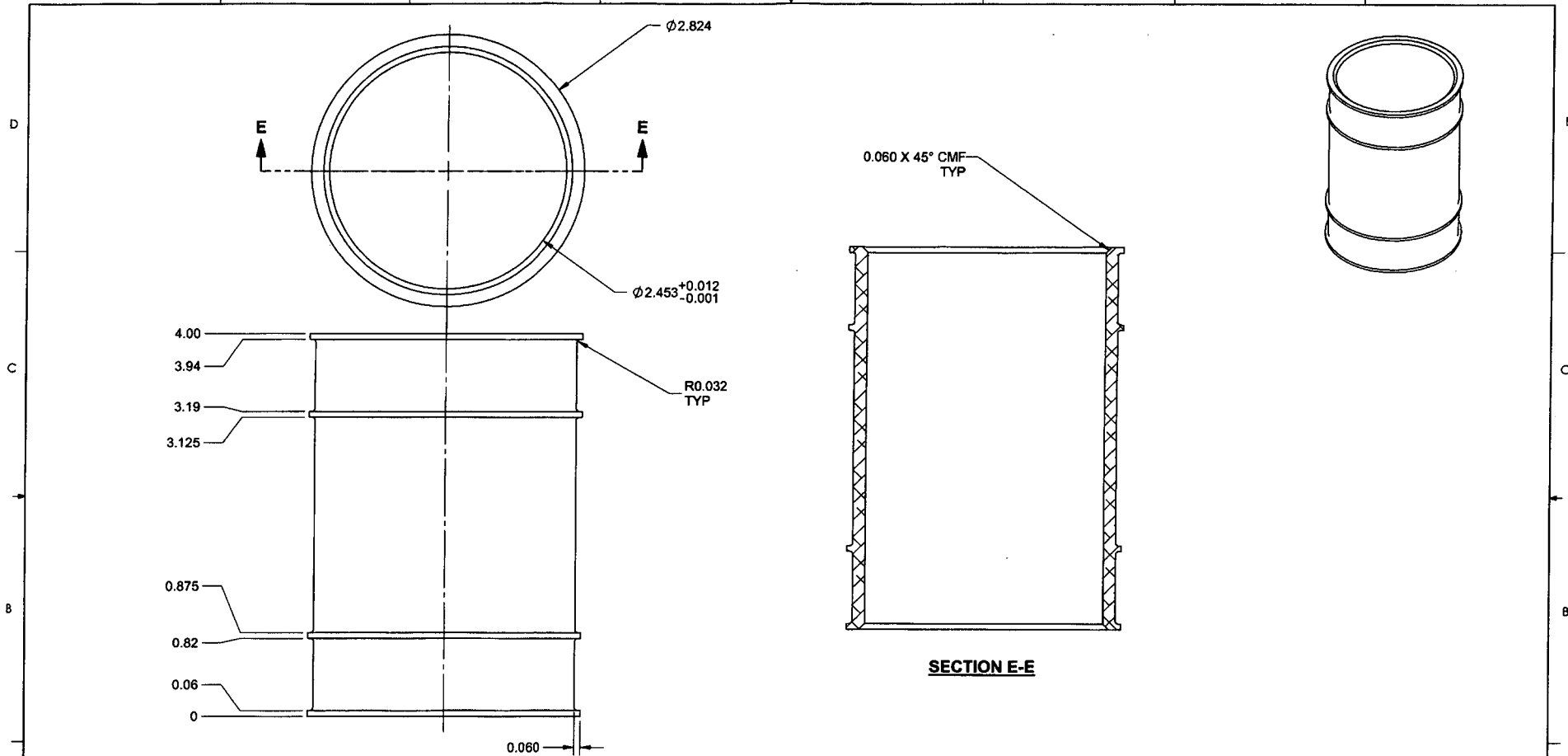
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|------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| DESIGN     | DB       | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                         |               |
| DRAWN      | AP       |                                                                                                                                                                                                                                                                                                  |               |
| CHECKED    | DB       | DRAWING NO.                                                                                                                                                                                                                                                                                      | REV. D        |
| MFG. APPR. | DD       | D5149                                                                                                                                                                                                                                                                                            | SHEET 7 OF 11 |
| APPROVED   | WM       | TITLE                                                                                                                                                                                                                                                                                            | SCALE         |
| DE APPR.   | DS       | STEP ASSEMBLY                                                                                                                                                                                                                                                                                    | NTS           |
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8 7 6 5 4 3 2 1



**SECTION E-E**

**D5149-1TRN TURNING DETAIL**

**NOTES:**

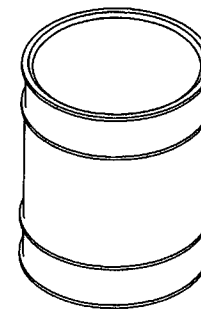
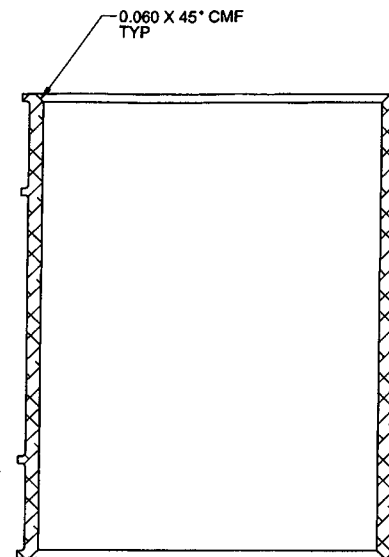
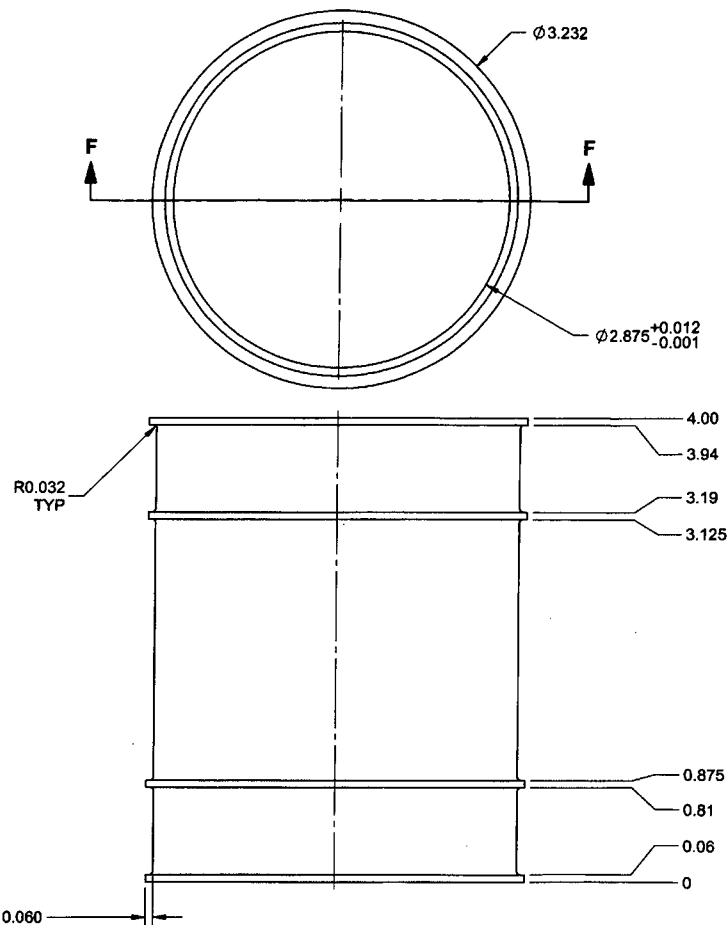
- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR  
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)  
OR QQ-A-200/8 OR AMS-QQ-200/8 (OR AMS 4160) OR ASTM B211 OR ASTM B221  
REF DART SPEC. M6061T6R
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.41 lbs

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|            |          |                                                                                                                                                                                                                                                                                         |               |
|------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| DESIGN     | DB       | <b>DART AEROSPACE LTD</b>                                                                                                                                                                                                                                                               |               |
| DRAWN      | AP       | HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                                             |               |
| CHECKED    | DB       | DRAWING NO.                                                                                                                                                                                                                                                                             | REV. D        |
| MFG. APPR. | DD       | D5149                                                                                                                                                                                                                                                                                   | SHEET 9 OF 11 |
| APPROVED   | WM       | TITLE                                                                                                                                                                                                                                                                                   | SCALE         |
| DE APPR.   | DS       | <b>STEP ASSEMBLY</b>                                                                                                                                                                                                                                                                    | NTS           |
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8 7 6 5 4 3 2 1



**D5149-7TRN TURNING DETAIL**

**NOTES:**

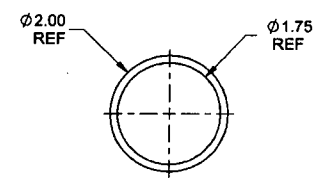
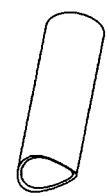
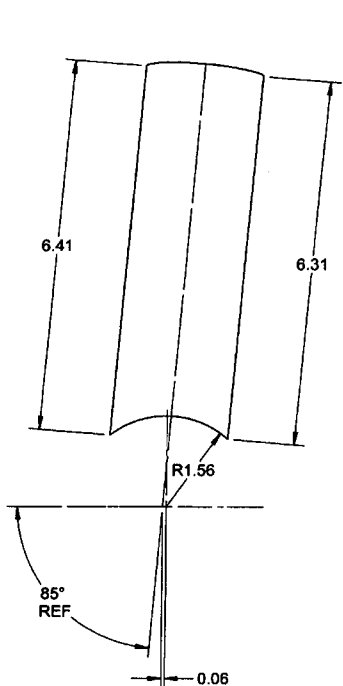
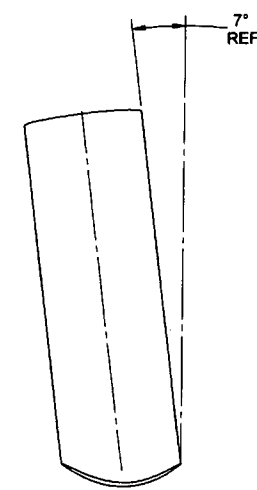
- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR  
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)  
OR QQ-A-200/8 OR AMS-QQ-200/8 (OR AMS 4160) OR ASTM B211 OR ASTM B221  
REF DART SPEC. M6061T6R
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.41 lbs

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|            |          |                                                                                                                                                                                                                                                                                |                |
|------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| DESIGN     | DB       | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                       |                |
| DRAWN      | AP       |                                                                                                                                                                                                                                                                                |                |
| CHECKED    | DB       | DRAWING NO.                                                                                                                                                                                                                                                                    | REV. D         |
| MFG. APPR. | DD       | <b>D5149</b>                                                                                                                                                                                                                                                                   | SHEET 10 OF 11 |
| APPROVED   | WM       | TITLE                                                                                                                                                                                                                                                                          | SCALE          |
| DE APPR.   | DS       | <b>STEP ASSEMBLY</b>                                                                                                                                                                                                                                                           | NTS            |
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**D5149-9 AFT STEP**

**NOTES:**

- 1) MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING PER WW-T-700/6 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 4082 OR AMS 4083 OR ASTM B210 OR ASTM B241  
REF DART SPEC M6061T6T2.000W0.125
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.44 lbs

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|            |          |                                                                                                                                                                                                                                                                                        |                |
|------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| DESIGN     | DB       | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                               |                |
| DRAWN      | AP       |                                                                                                                                                                                                                                                                                        |                |
| CHECKED    | DB       | DRAWING NO.<br><b>D5149</b>                                                                                                                                                                                                                                                            | REV. D         |
| MFG. APPR. | DD       |                                                                                                                                                                                                                                                                                        | SHEET 11 OF 11 |
| APPROVED   | WM       | TITLE                                                                                                                                                                                                                                                                                  | SCALE          |
| DE APPR.   | DS       | <b>STEP ASSEMBLY</b>                                                                                                                                                                                                                                                                   | NTS            |
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